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TWO NEW LOCAL UMBELLIFERAE (APIACEAE) FROM CALIFORNIA

MILDRED E. MATHIAS

Department of Biology, University of California, Los Angeles 90024

LINCOLN CONSTANCE

Department of Botany, University of California, Berkeley 94720

Current interest in the possible extirpation of increasing numbers of restricted populations of native plants in California has focussed attention on narrow endemics of all sorts, since they are especially vulnerable. The names of two such examples have been entered on one or more of the lists of rare or endangered species without having been properly legitimized. The purpose of this contribution is to describe and illustrate them, since it seems unwise to delay their debut any longer.

Angelica callii Mathias & Constance, sp. nov. *Plantae caulescentes crassae* 1–2 m altae, *foliis glabris minute scaberulisve, inflorescentia scaberula hirsutulave; folia ovata ternato–1–2–pinnata, divisionibus principalibus interdum reflexis rhacidibus geniculatis, foliolis lanceolatis ovato-lanceolatisve* 3–13 cm longis, 1.5–4 cm latis, *acutis vel obtusis, acute serratis; petioli* 0.5–3 dm longi *basi anguste vaginantes; folia cauline sursum reducta plerumque pinnata, foliis summis dilatatis sine lamina; pedunculi paulo graciles* 1–2 dm longi; *involucrum nullum; involucellum plerumque nullum; radii* 25–50 subaequales *patenti-adscendentes basi conspicue connati* 2.5–7(–10) cm longi; *pedicelli plures inaequales patenti-adscendentes basi conspicue connati* 5–15 mm longi; *flores albi vel subrosei, petalis ovalibus obovatisve basi extra paulo hirsutulis, stylopodium conico quam stylis gracilibus brevior, ovariis hirsutulis; carpophorum bipartitum; fructus ovalis obovatusve* 3.5–5 mm longus, 2.5–4 mm latus, *hirsutulus glabratusve, costis dorsalibus demissis rotundatis coarctatis suberosis quam intervallis multo latioribus, costis lateralibus quam eis dorsalibus multo latioribus suberosis, quam corpore fructus plerumque angustioribus; vittae ad valleculas solitariae magnae ad pericarpium adherentes; chromosomatum numerus* $n = 11$. *Fig. 1.*

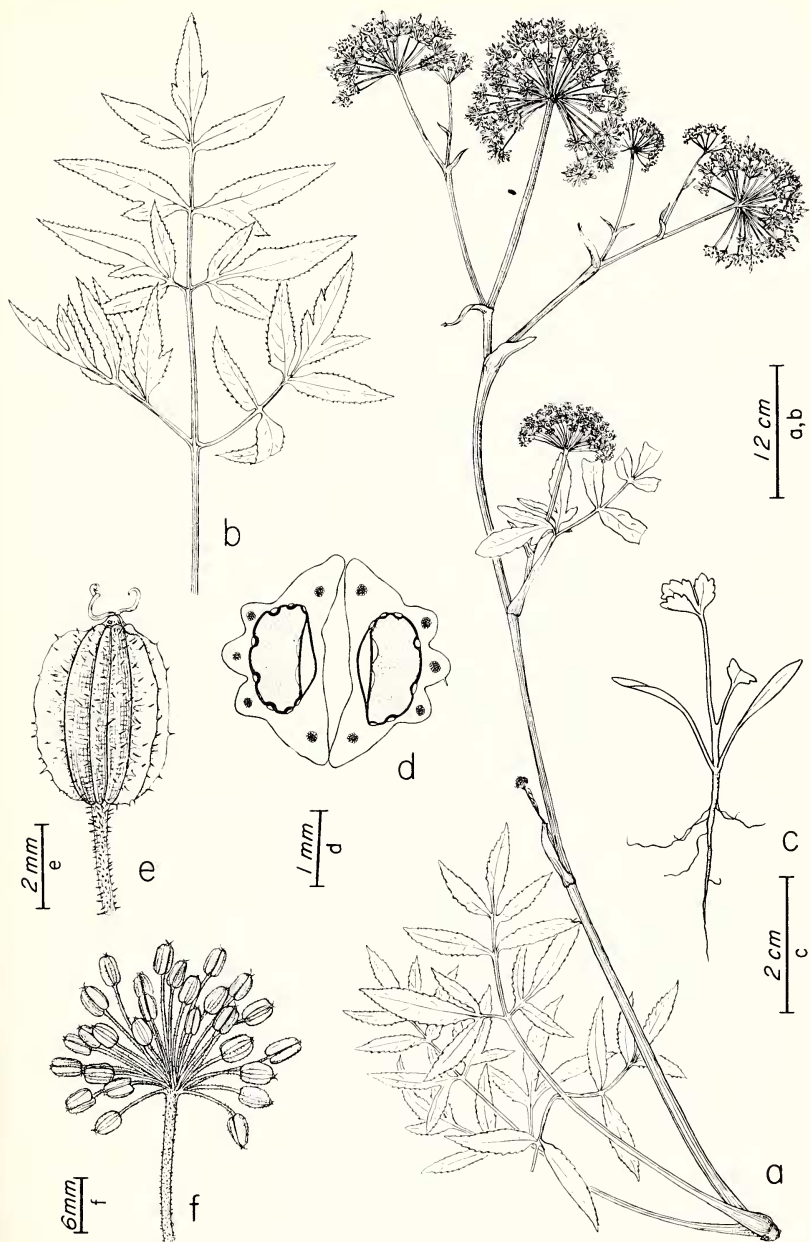


FIG. 1. *Angelica callii*. a, habit. b, basal leaf. c, seedling. d, transection of fruit. e, dorsal view of entire fruit. f, fruiting umbellet. All from Call & Call 2459, 2544, and 2550.

Plants stout, 1–2 m tall, the foliage glabrous to minutely scaberulous, strongly scented, the inflorescence scaberulous to hirsutulous; leaves ovate, 1–4 dm long, 1–3 dm broad, ternate-pinnately divided, the main divisions sometimes reflexed and the rachis geniculate, the leaflets lanceolate to ovate-lanceolate, 3–13 cm long, 1.5–4 cm broad, acute to obtuse, the larger petiolulate and with one or 2 narrow lobes or leaflets at base, the others sessile, sharply serrate; petioles stout, 0.5–3 dm long, narrowly sheathing at base; cauline leaves reduced upward, mostly pinnate, with moderately dilated sheaths, the uppermost sheaths bladeless; peduncles rather slender, 1–2 dm long; involucre wanting; rays 25–50, 2.5–7 (–10) cm long, spreading-ascending, subequal, conspicuously webbed; involucre of a few inconspicuous filiform bractlets, or lacking; pedicels 5–15 mm long, spreading-ascending, unequal, conspicuously webbed; flowers white or pinkish, the petals oval to obovate, a little hirsutulous at base dorsally; styles slender, much longer than the conical stylopodium; ovaries hirsutulous; fruit oval to obovate, 3.5–5 mm long, 2.5–4 mm broad, hirsutulous to glabrate, the dorsal ribs low, rounded, crowded, much broader than the intervals, the lateral ribs broader than the dorsal, narrower than to about equalling the body, all corky-thickened; vittae large and solitary under the intervals, apparently with smaller ones under the ribs, making them continuous about the seed and adhering to it when and if it becomes loose in the pericarp; chromosome number $n = 11$.

TYPE: California, Tulare Co., on stream banks 2 mi E of Lookout Guard Station near Sequoia National Park, 4600 ft altitude, 18 Oct 1965, *Tracey & Viola Call 2459* (Holotype: UC).

DISTRIBUTION: Stream banks between altitudes of 3800 and 6500 ft, W slope of Sierra Nevada in Tulare County and adjacent Kern County, California.

SPECIMENS EXAMINED: Tulare Co.: banks of Bear Creek near Coy Flat E of Springville, 5000 ft, 6 Nov 1965, *Call & Call 2461*; banks 0.5 mi E of California Hot Springs, 3300 ft, 15 Sep 1966, *Call & Call 2549*; steep E-facing rocky stream bed above Redwood Meadow ca 15 mi NE of California Hot Springs, 6500 ft, 15 Oct 1966, *Call & Call 2550* (garden-grown progeny and chromosome voucher, *Constance 693*); shaded banks of Bear Creek above Coy Flat near Camp Nelson, 3800 ft, 15 Oct 1966, *Call & Call 2551*. Kern Co.: small stream on N-facing slope 1 mi N of Greenhorn Summit, 5800 ft, 7 Sep 1966, *Call & Call 2544*.

This appears to be closest to *Angelica wheeleri* S. Wats. of Utah, but is distinguishable by (1) subequal fruiting rays, (2) much less inflated and hence narrow and inconspicuous upper cauline leaf sheaths, and (3) lower and broader dorsal fruit ribs. In pubescence, leaf serration, webbing of rays and pedicels, and in the shape and pubescence of the ovary and fruit, the two are strikingly similar.

This interesting new *Angelica* was discovered a decade ago by Dr. and Mrs. Call of California Polytechnic State University, San Luis Obispo,

who are discerning students and discriminating collectors of Umbelliferae. It has not, so far as we are aware, been secured by anyone else. The chromosome count was made by Dr. and Mrs. Tsan-Iang Chuang.

Lilaeopsis masonii Mathias & Constance, sp. nov. Plantae perennes horizontaliter rhizomatosae caespitosae glabrae; folia teretia linearifiliformia 1.5–7 cm longa diametro usque 1 mm, septiis paucis obscurisque; pedunculi 7–15 mm longi debiles quam folia breviores; umbellae 3–8-flores; pedicelli adscendentes vel patentisque vel reflexi 2–6 mm longi; fructus ovoideus 1.5–1.8 mm longus, 1.25–1.5 mm latus, costis dorsalibus acutis obscuris, eis lateralibus prominentibus latis suberoso-incrassatis; chromosomatum numerus $n = 22$. Fig. 2.

Plants perennial rhizotamous, forming a low turf, glabrous; leaves quill-shaped, terete, linear-filiform, 1.5–7 cm long, less than 1 mm in diameter, the septae few and obscure; peduncles 7–15 mm long, weak, shorter than leaves; umbels 3–8-flowered; pedicels ascending to spreading or reflexed, 2–6 mm long; fruit ovoid, 1.5–1.8 mm long, 1.25–1.5 mm broad, corky-thickened; chromosome number $n = 22$.

TYPE: California, Sacramento Co., moist sandy soil with *Scirpus* and *Equisetum*, Twitchell Island, margin of Sacramento River 6.5 mi S of RioVista, at sea level, 14 Jul 1955, *L. Constance & H. L. Mason 3611* (Holotype: UC).

DISTRIBUTION: Low-lying shores of San Francisco Bay at the deltaic mouths of its tributaries. Mason has recently reported verbally that the plant occurs on some of the islets elsewhere in the delta, but we have seen no material.

SPECIMENS EXAMINED: Napa Co.: am Ufers des Napaflusses südlich von Napa, 24 Jul 1913, *W. N. Suksdorf 630* (K, UC). Solano Co.: wet soil at edge of slough with *Triglochin* and *Juncus*, Suisun Marsh ca 1 mi S of Suisun, 19 May 1957, *J. M. Tucker 3332* (CAS, DS, UC). Sacramento Co.: moist sand and mud with *Limosella*, *Hydrocotyle*, *Helenium*, *Arundinaria*, *Scirpus* and *Salix*, Sherman Island, margin of San Joaquin River 0.5 mi E of N end of Antioch Bridge, 14 Jul 1955, *Constance & Mason 3610* (UC, including garden-grown progeny and chromosome voucher); N end of Antioch Bridge, Apr 1954, *Mason s. n.* (UC). Contra Costa Co.: lower San Joaquin River, Antioch, Oct 1942, *Mason 12,556* (UC); along lower river just above Antioch, 12 Jun 1955, *P. H. Raven 8292* (CAS).

In his "Flora of the Marshes of California," Mason (1957) stated: "On the basis of vegetative characters there appear to be two forms of this species: (1) the coastal form, extending southward to Marin County, California, from British Columbia, which has somewhat broad, often flattened, and conspicuously septate phyllodes; and (2) the San Francisco Bay and river-mouth form, which has very fine, terete, and only obscurely septate phyllodes. Additional collections and further study may show that these merit taxonomic recognition" (p. 631). Also Hill, in his classic monograph of the genus *Lilaeopsis* (1927), in citing the Suksdorf specimen listed above as his only California representative,

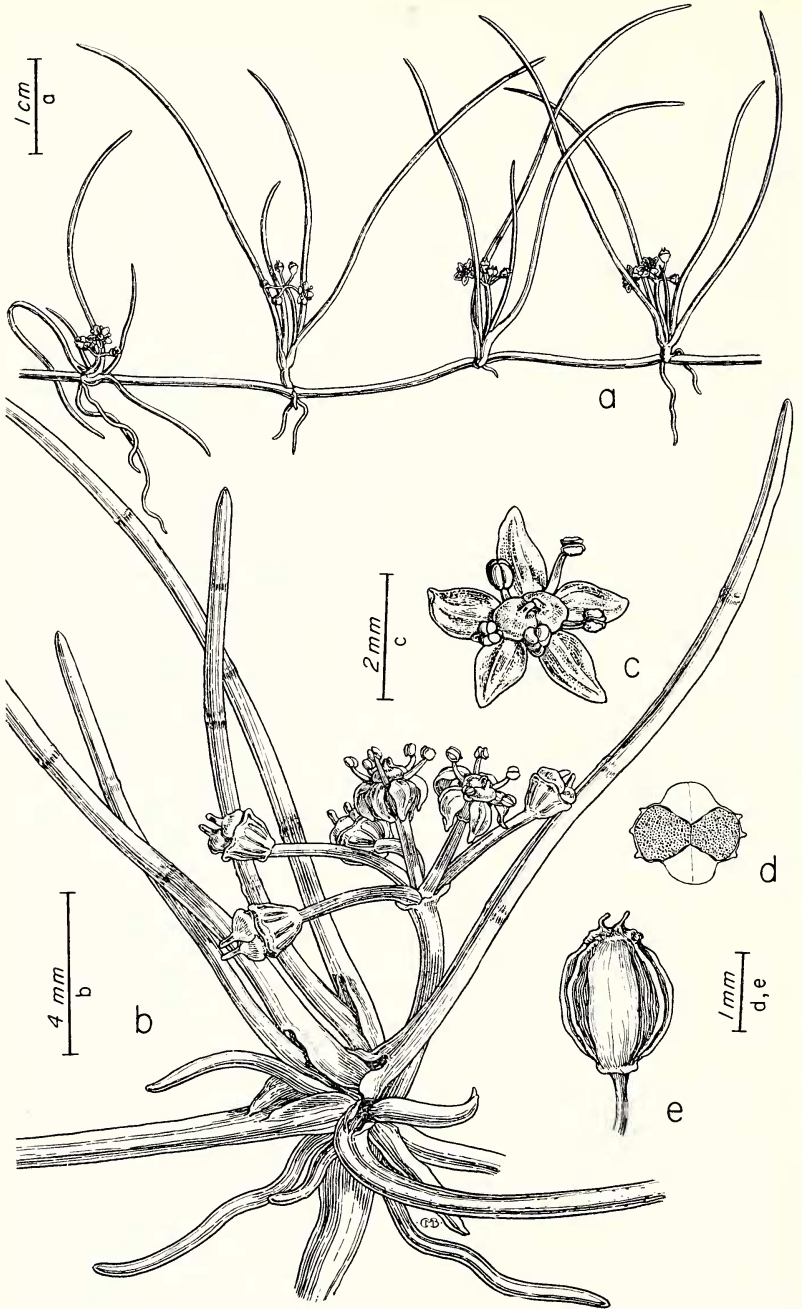


FIG. 2. *Lilaeopsis masonii*. a, habit. b, individual node showing foliage and inflorescence. c, flower. d, transection of fruit. e, lateral view of entire fruit. All from Constance & Mason 3610.

remarked its narrower and more slender leaves, but referred it to *L. occidentalis* Coult. & Rose because of the agreement in fruit structure between the California plant and those from further north.

The most critical distinguishing feature between the coastal and delta plants is that the leaves of the latter are not only narrower, more slender, and usually shorter, but that they are truly terete, have proportionately fewer septae, particularly toward the apex, and that these septae are so obscure that they are likely to remain unobserved. The fruit characters, upon which Hill relied so heavily to distinguish species, are essentially identical. Even chromosome number is of no taxonomic assistance since *L. masonii* like *L. occidentalis*, has a complement of $n = 22$; both are presumably tetraploid. The taxon referred to as *Lilaeopsis* sp. in Constance, Chuang & Bell (1976, No. 481, p. 619) is *L. masonii*.

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VEGETATION ANALYSIS OF A NORTHERN CALIFORNIA COASTAL PRAIRIE: SEA RANCH, SONOMA COUNTY, CALIFORNIA

M. M. HEKTNER and T. C. FOIN

Division of Environmental Studies and Institute of Ecology
University of California, Davis 95616

The northern coastal prairies of California are distributed along parts of the coastal zone from the California-Oregon border south to Monterey Bay. Previous authors have outlined the natural history and the distribution of species of the coastal grassland ecosystem (Beetle, 1947; Burcham, 1957; Munz, 1973; Crampton, 1974; Ornduff, 1974) and a number of floristic surveys have been completed (Davy, 1902; Peñalosa, 1963; Barbour, 1970, 1972; Howell, 1970; Hardham and True, 1972). Ecological analysis of the coastal grassland, however, has been limited (Huffaker and Kennett, 1959; Batzli and Pitelka, 1970; Barbour et al., 1973; Elliott and Wehausen, 1974; Davidson, 1975); Heady et al. (1977) also reached this conclusion.

In 1974, we began an analysis of the coastal perennial grassland community at Sea Ranch, Sonoma County, California. The two major goals of this program are first to document the structure of a coastal grassland that has not been grazed by livestock for approximately 10 years, and secondly to develop hypotheses about dominance and diversity relationships suitable for experimental tests.